

Name: _____

Worksheet – Simplifying Rational Expressions- Version 1

Directions: Please simplify the following expressions.

1. $\frac{3x+12}{4x+16}$ GCF GCF

$$\frac{\cancel{3(x+4)}}{\cancel{4(x+4)}} \\ \left(\frac{3}{4} \right)$$

2. $\frac{-3y-9}{36+12y}$ GCF GCF

$$\frac{-\cancel{3(y+3)}}{\cancel{12(3+y)}} \\ \left(-\frac{1}{4} \right)$$

3. $\frac{b^2-9}{b^2+7b+12}$ D2D's QT-E

$$\frac{\cancel{(b+3)}(b-3)}{\cancel{(b+3)}(b+4)} \\ \left(\frac{b-3}{b+4} \right)$$

4. $\frac{m^2-2m-35}{m^2+9m+20}$ QT-E QT-E

$$\frac{\cancel{(m-7)}(m+5)}{\cancel{(m+4)}(m+5)} \\ \left(\frac{m-7}{m+4} \right)$$

5. $\frac{x^2+18x+81}{x^2+10x+9}$ PST QT-E

$$\frac{\cancel{(x+9)}(x+9)}{\cancel{(x+9)}(x+1)} \\ \left(\frac{x+9}{x+1} \right)$$

6. $\frac{3m^2b-24m^2}{6mb+24m}$ GCF GCF

$$\frac{3m^2(b-8)}{6m(b+4)} \\ \left(\frac{m(b-8)}{2(b+4)} \right)$$

7. $\frac{r^2-25}{r^2-10r+25}$ D2D's PST

$$\frac{\cancel{(r-5)}(r+5)}{\cancel{(r-5)}(r-5)} \\ \left(\frac{r+5}{r-5} \right)$$

8. $\frac{x^2-x-72}{x^2+11x+24}$ QT-E QT-E

$$\frac{\cancel{(x-9)}(x+8)}{\cancel{(x+3)}(x+8)} \\ \left(\frac{x-9}{x+3} \right)$$

9. $\frac{2b^2+28b+66}{b^2+11b}$ GCF & QT-E GCF

$$\frac{2(b^2+14b+33)}{b(b+11)} \\ \frac{\cancel{2(b+11)}(b+3)}{\cancel{b(b+11)}} \\ \left(\frac{2(b+3)}{b} \right)$$

10. $\frac{8k^2 - 200}{2k - 10}$ GCF

$$\frac{8(k^2 - 25)}{2(k - 5)}$$

$$\frac{4 \cancel{8}(k - 5)(k + 5)}{2 \cancel{2}(k - 5)}$$

$$\boxed{4(k + 5)}$$

11. $\frac{25m^2 - 1}{5m^2 + 14m - 3}$ D2D's AT-H

$$\frac{(5m - 1)(5m + 1)}{(5m - 1)(m + 3)}$$

$$\boxed{\frac{5m + 1}{m + 3}}$$

	m	+3
5m	5m ²	15m
-1	-m	-3

12. $\frac{10a^2b^2 - 90a^3b}{-5ab}$ GCF

$$\frac{10a^2b(b - 9a)}{-5ab}$$

$$\boxed{-2a(b - 9a)}$$

13. $\frac{2x^2 + 7x + 3}{3x^2 + 8x - 3}$ AT-H

$$\frac{(2x + 1)(x + 3)}{(3x - 1)(x + 3)}$$

$$\boxed{\frac{2x + 1}{3x - 1}}$$

	2x	1
x	2x ²	x
3	6x	3

14. $\frac{5y^2 - 3y - 2}{y^2 - 2y + 1}$ AT-H PST

$$\frac{(5y + 2)(y - 1)}{(y - 1)(y - 1)}$$

$$\boxed{\frac{5y + 2}{y - 1}}$$

	y	-1
5y	5y ²	-5y
2	2y	-2

15. $\frac{3y^2 - 15y - 108}{2y^2 - 19y + 9}$ GCF AT-E

$$\frac{3(y^2 - 5y - 36)}{(2y - 1)(y - 9)}$$

$$\frac{3(y - 9)(y + 4)}{(2y - 1)(y - 9)}$$

$$\boxed{\frac{3(y + 4)}{2y - 1}}$$

	y	-9
2y	2y ²	-18y
-1	-y	9

	x	3
3x	3x ²	9x
1	x	-3